In the Specification:

Please amend the paragraph starting at page 1, line 16 as follows:

Generally, in order to obtain a steep cut-off characteristic in a communications filter, the number of filter stages must be increased. However, a problem which arises is a commensurate increase in loss in the pass band. Accordingly, note has been taken of the fact that a superconductor has a resistance that is lower than that of ordinary metals by two to three orders of magnitude, and a superconducting filter that holds loss in the pass band to the minimum has been put into practical use employing a superconductor as the conductor of the filter. Such a superconducting filter has become the focus of much attention in recent years for the purpose of effectively utilizing frequency in mobile communications, increasing subscriber capacity and increasing base-station coverage area, etc. A known example of a superconducting material for a superconducting filter is YBCO (Y-Ba-Cu-O), which has a critical temperature (T_c) on the order of 90 K. This material is used at a temperature T_c on the order of 70 K, which is a temperature at which superconducting characteristics are stable.

Please amend the paragraph starting at page 10, line 5 as follows:

The superconducting filer 11 exhibits a prescribed pass band characteristic S21 when it is cooled to a cryogenic temperature of 70 K. Fig. 2 shows an example of the pass band characteristic of the superconducting filter 11 at $T_0 = 70$ K. The superconducting filter has a pass band of 1950 to 1970 MHz. The superconducting filter 11 operates below the critical temperature (T_c). If the temperature is raised as follows: $T = T_0 \rightarrow T_1 \rightarrow T_2$ ($T_0<T_1<T_2$), as shown in Fig. 3(A), the center frequency f_0 of the filter pass band diminishes as follows: $f_{00} \rightarrow f_{01} \rightarrow f_{02}$, and insertion loss increases. The closer the temperature approaches the critical temperature T_c, the greater the rate of change. As a result, the pass band characteristic S21 of the superconducting filter 11 varies depending upon temperature ($T = T_0$, $T = T_1$, and $T = T_2$), as shown in Fig. 3(B). In actuality, since the low-noise amplifier 12 is connected immediately following the superconducting filter 11, the overall pass band characteristic varies depending upon temperature ($T = T_0$, $T = T_1$, and $T = T_2$), as shown in Fig. 3(C), as a result of the signal being amplified by the gain of the low-noise amplifier 12. In Figs. 3(B) and 3(C), ~~t_{00}, t_{01} and t_{02}~~ f_{00}, f_{01} and f_{02} are center frequencies of the pass band characteristics S21 at the temperature ($T = T_0$, $T - T_1$, and $T = T_2$).

Please amend the paragraph starting at page 16, line 2 as follows:

Accordingly, as shown in Fig. 9(A), the two pilot signals Sfc_1, Sfc_2 of the frequencies fc_1, fc_2, respectively, that are outside the pass band of the superconducting filter 11 for which $T = T_0$ holds are input to the superconducting filter 11 together with the receive signal, and the levels of the pilot signals Sfc_1, Sfc_2 are detected by the pilot signal detector 21 to discriminate the extent of refrigerator malfunction. In Fig. 9(A), each of the pass band characteristic at the temperature of T = T0, ~~T = T1~~ <u>T = T1</u> and T = T2, is shown and in Figs. 9(B), 9(C) and 9(D), a pass band characteristic at the temperature of T = T0 is shown.

Please amend the paragraph starting on page 16, line 9 as follows:

<u>Figs. 10(A), 10(B), and 10(C) show pilot signals Sfc_1 of frequency fc_1 and Sfc_2 of frequency fc_2 relative to time.</u> If the refrigerator malfunction is minor, as when there is a temporary decline in refrigerating performance, the pass band characteristic (frequency characteristic) of the superconducting filter 11 shifts temporarily to the low-frequency side due to the temperature rise. Since the temperature returns to normal, however, the pass band characteristic also returns to normal. In other words, due to a temporary rise in temperature, the pass band characteristic of the superconducting filter 11 is as indicated by the dashed line in Fig. 9(B). Thereafter, the characteristic returns to the pass band characteristic of the solid line due to the return to normal temperature. When the temperature rises, therefore, first the pilot signal Sfc_2 of frequency fc_2 is detected, as shown in Figs. 9(B) and 10(A), and then the pilot signal Sfc_1 of frequency fc_1 is detected. When the temperature returns to normal, on the other hand, first the pilot signal Sfc_1 of frequency fc_1 stops being detected, then the pilot signal Sfc_2 of frequency fc_2 stops being detected. If the temperature rise is slight, the pass band characteristic of the superconducting filter 11 becomes as indicated by the dashed line in Fig. 9(C), the pilot signal Sf_1 of frequency fc_1 is not detected and only the pilot signal Sfc_2 is detected. The time waveform of the detected level of the pilot signal Sfc_2 becomes as shown in Fig. 10(B).

Please amend the paragraph starting at page 17, line 14 as follows:

Fig. 11 is a diagram showing the structure of a fifth embodiment of the present invention. This embodiment detects refrigerator malfunction and malfunction of the low-noise amplifier. Components identical with those of the first embodiment in Fig. 1 are designated by like reference characters. In the fifth embodiment, a directional coupler 41 is provided intermediate the superconducting filter 11 and low-noise amplifier 12, and the pilot signal that is output from a pilot signal generator 42 is superimposed upon the output signal of the superconducting filter 11 via this directional coupler. The frequency f_L of the pilot signal is outside the pass band of the superconducting filter 11. By way of example, $f_L = 2000$ MHz holds. The directional coupler 41 which has the structure shown in Fig. 12, which shows pilot signals Sfc1 of frequency fc1 and Sfc2 of frequency fc2 relative to time, couples the pilot signal, which is output from the pilot signal generator (oscillator VCO) 42, in such a manner that the signal flows in the direction of the superconducting filter 11 and in the direction of the low-noise amplifier 12.

Please amend the paragraph starting at page 18, line 18 as follows:

Figs. 14(A) and 14(B) each show a superconducting filter 11, coupler 41, low-noise amplifier 12, and pilot signal generator VCO 42. Thus, if the superconducting filter 11 is operating normally ~~(see Fig. 14(A),~~ see Fig. 14(A)), pilot signal from the pilot signal generator (T=VCO) 42 is totally reflected, even though it attempts to flow into the superconducting filter 11 from the coupler 41, and signal flows to the side of the low-noise amplifier 12 and the total power of the pilot signal flows into the low-noise amplifier 12, as shown in Fig. 14(A). If the refrigerator 15 malfunctions and the critical temperature is exceeded ~~(see Fig. 14(B),~~ (see Fig. 14(B)), however, the pilot signal from the pilot signal generator VCO 42 is not reflected and flows into the superconducting filter 11. As a consequence, the power of the pilot signal that flows into the low-noise amplifier 12 becomes half of that at the time of normal operation. That is, since the pilot signal flows into the superconducting filter 11 and low-noise amplifier 12 by being split equally by the coupler 41, the detected level of the pilot signal in the pilot signal detector 43 falls by 3 dB at the time of malfunction. It should be noted that since the gain of the low-noise amplifier 12 also declines when temperature rises, in actuality the level falls by 5 dB inclusive of the fall in gain. Since the fall in level is a known value due to the characteristics of the coupler and low-noise amplifier, this will be referred to as L_D (dB) below.

Please amend the paragraph starting at page 20, line 17 as follows:

The antenna receive signal, pilot signal Sf_c of frequency f_c and the pilot signal Sf_L of frequency f_L are each output from the output terminal 18a and pass through the pilot signal detector 21 of frequency f_c and pilot signal amplifier 43 of frequency f_L in the order mentioned. The detectors 21, 43 detect the levels of the pilot signals of frequencies f_c, f_L, respectively, and input the detected levels to a fault-location discriminator 51. The latter discriminates fault location in accordance with Fig. 16, which shows a table wherein Sf_c = pilot signal of frequency f_c, Sf_l = detected level of the pilot signal and l_D (dB) as previously defined. Specifically, the fault-location discriminator 51 decides that the refrigerator 15 is normal (see cases 1, 2 and 3) if the pilot signal Sf_c is not detected and decides that the refrigerator 15 has malfunctioned (see cases 4 and 5) if the pilot signal Sf_c of frequency f_c is detected. Further, the fault-location discriminator 51: (1) decides that the refrigerator and amplifier are normal (see case 1) if the detected level of the pilot signal Sf_L is normal; (2) decides that the low-noise amplifier 12 has malfunctioned (see case 2) if the refrigerator is normal and the detected level of the pilot signal Sf_L falls by L_D (dB); (3) decides that the low-noise amplifier 12 has malfunctioned (see ~~case 3~~ case 3) if the refrigerator is normal and the detected level of the pilot signal Sf_L falls by any decibel amount; (4) decides that the low-noise amplifier 12 is normal (see case 4) if the refrigerator is abnormal and the detected level of the pilot signal Sf_L falls by L_D (dB); and (5) decides that the low-noise amplifier 12 also is abnormal if the refrigerator is abnormal (see case 5) and the detected level of the pilot signal Sf_L falls by more than L_D (dB).